DOCUMENT RESUME

ED 218 882 EC 143 147

AUTHOR Kakalik, J. S.; And Others

TITLE The Cost of Special Education: Summary of Study Findings.

INSTITUTION Rand Corp., Santa Monica, Calif.
SPONS AGENCY Office of Special Education and Rehabilitative Services (ED), Washington, DC.
REPORT NO ISBN-0-8330-0381-X; Rand-R-2858-ED
PUB DATE Nov 81
CONTRACT 300-79-0733
NOTE 71p.; For related document, see EC 143 146.
AVAILABLE FROM The Rand Corporation, 1700 Main St., Santa Monica, CA 90406 (no price quoted).

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Ancillary School Services; Demography; *Disabilities; Educational Finance; Elementary Secondary Education; *Expenditure Per Student; Preschool Education; *Program Costs; Research Methodology

ABSTRACT

The report summarizes findings of a study of the cost of special education and related services for handicapped children, using information from a national survey taken in 1977-1978. The document is divided into 22 sections, beginning with an introduction which describes the study's objective, gives an overview of findings, and outlines the report. Sections II and III describe the selection of a nationally representative sample and the data collection and analysis methods. Personnel salaries and work years are examined in Section IV. A fifth section summarizes the educational placements and age levels of handicapped students served. Sections VI through XVII discuss the estimated costs of various types of special education and related services, including costs of special education teacher instruction, special education aides, regular education teacher and aide instruction, related services personnel, screening, assessment, admission and individualized education program development, staff inservice training, technical assistance, transportation, and other costs. Sections XVIII through XXI summarize the estimated total and added costs of special education and related services, as well as cost weighting factors. Finally, Section XXII presents the variation in the total cost of special education by size of school district enrollment. (SB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

0444

ED218882

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

The Cost of Special Education

Summary of Study Findings

J. S. Kakalik, W. S. Furry, M. A. Thomas, M. F. Carney

EC 143147

Rand

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY
John C. Hogan
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

This work was performed under Contract No. 300-79-0733 from the U.S. Department of Education, Office of Special Education.

Library of Congress Cataloging in Publication Data
Main entry under title.

The Cost of special education.

"R-2858-ED."
1. Handicapped children--Education--United States--Costs. I. Kakalik, James S.
II. United States. Dept. of Education.
III. Rand Corporation.
LC4031.C665 371.9'0973 81-23383
ISBN 0-8330-0381-X AACR2

The Rand Publications Series: The Report is the principal publication documenting and transmitting Rand's major research findings and final research results. The Rand Note reports other outputs of sponsored research for general distribution. Publications of The Rand Corporation do not necessarily reflect the opinions or policies of the sponsors of Rand research.

Published by The Rand Corporation

R-2858-ED

The Cost of Special Education

Summary of Study Findings

J. S. Kakalik, W. S. Furry, M. A. Thomas, M. F. Carney

November 1981

Prepared for the
U.S. Department of Education

Rand
SANTA MONICA, CA. 90406

PREFACE

This report summarizes the findings of a Rand study of the cost of special education and related services for handicapped children, using information from a national survey taken in 1977-1978. A full, detailed description of the analyses and findings appears in Rand Note N-1792-ED, The Cost of Special Education. The work was performed under Contract No. 300-79-0733 from the U.S. Department of Education, Office of Special Education.

The objective of the study is to assist in the formulation of policies and the allocation of resources for the education of handicapped children by providing accurate information on the cost of various types of special education and related services. This cost information is to be provided by age level, type of handicapping condition, and type of educational placement, and is to be based on data from a nationally representative sample of localities of various sizes.

SUMMARY

The objective of this study is to assist in the formulation of policies and the allocation of resources for the education of handicapped children by providing accurate information on the cost of various types of special education and related services.

Information about the cost of special education will aid in determining the levels of financing required to provide an appropriate education for handicapped children; facilitate setting policies on service requirements and related matters by enhancing understanding of the costs of different types of services and educational placements; and allow adjustment of state and federal special education finance formulas to match local need and reduce fiscal incentives for inappropriate classification and placement of children. We believe that using this study's more accurate and detailed cost information will yield major improvements in special education policies and programs.

Using data collected in person from a nationally representative sample of localities in 1977-1978, this study addresses the following questions:

1. What are the total costs of special education and related services for different age levels, different handicapped populations, various educational placements, and various sizes of school districts?
2. What are the costs of such services for handicapped students as assessment and placement, instructional services, related services, and administrative services?

3. What are the added costs of special education and related services for handicapped children above the cost of regular education services for nonhandicapped children?

How much do various types of special education and related services for handicapped children cost? For the 1977-1978 school year, total nationwide expenditures for the "added cost" of special education (those costs above the cost of regular education) were over $7 billion. The total cost of special education and related services per handicapped child served in 1977-1978 was an estimated $3577. This was 2.17 times greater than the cost of regular education per nonhandicapped child. The added cost of special education and related services above the cost of regular education for a nonhandicapped child was an estimated $1927 per handicapped child served.

In the three-year time span from the 1977-1978 school year to the 1980-1981 school year, the estimated annual current expenditures per pupil in average daily attendance in public elementary and secondary days schools increased 37 percent. Assuming that both the cost of regular education per pupil and the cost of special education per pupil increased by the same 37 percent during that period, then over $10 billion was spent nationwide in the 1980-1981 school year for the added cost of special education. For that school year, total costs and added costs of special education and related services per handicapped pupil were an estimated $4898 and $2638, respectively.

Various breakdowns of the estimated total cost of educating handicapped children during the 1977-1978 school year are presented below. Unless otherwise indicated, the figures are costs per handicapped child.

Instruction by special education teachers and aides cost $551 and $106, respectively, including salaries and fringe benefits. Instruction by regular education teachers cost an estimated $743, of which $206 was for time spent per handicapped child above and beyond the average time spent per nonhandicapped child. Related services, such as physical therapy or speech therapy, cost an average of $191. Assessment of the children's handicapping conditions and special education needs cost an estimated $100 per child. Admission to special education, placement, and individual education program development cost $103 per child in salaries and fringe benefits. Technical assistance from one staff member to another regarding special education and related services cost $135. Regular and special transportation of handicapped students cost estimated averages of $48 and $111, respectively, per child. Special education administrative costs were $87 per child. General district-level administration and school level administration cost $200 and $209, respectively. Food services cost $88. Facility operations and maintenance costs totaled $378, and interest plus debt retirement was $245. All other types of costs combined totaled $282 out of the grand total of $3577 per handicapped child.

By age level, the costs were a total of $3526 ($3526 added cost) at the preschool level, a total of $3267 ($1617 added cost) at the elementary level, and a total of $4099 ($2449 added cost) at the secondary level per handicapped child in 1977-1978.

By type of handicap, the range in the total cost per child was from a low of $2253 ($603 added cost) for speech impaired children up to $9664 ($8014 added cost) for functionally blind children. The more

severe the handicap of the average child in a category, the higher the average cost. For example, providing an education for severely retarded children cost $5926, while serving educable mentally retarded children cost $3795.

By type of educational placement, the range in total cost was from a low of $901 (a savings of $749 instead of an added cost) per handicapped child who worked full time under the auspices of the special education program rather than attending classes, up to $5352 ($3702 added cost) per child in a special day school only for handicapped children.

Other children in the lower-cost placements were in a regular class receiving indirect special services only ($2550 total cost and $900 added cost) or in a regular class receiving related services only ($2267 total cost and $617 added cost). The homebound placements ($2228 total cost and $578 added cost) and short-term, hospital-bound placements ($1981 total cost and $331 added cost) were also lower-cost placements because the children were away from school for only a small fraction of the year. Also, the short-term homebound and short-term hospital bound children often received no related services from the school district and often did not have an individualized education program written for them.

Children in regular class who received itinerant special teacher services were in the second most expensive placement ($5218 total cost and $3568 added cost), and entailed costs just slightly less than those of children in special day schools. The reason for the high cost of the itinerant special teacher placement was the expensive one-to-one teaching that was usually provided.

The two "mainstream" placements of regular class plus part-time special class ($4709 total cost and $3059 added cost), and special class plus part-time regular class ($4345 total cost and $2695 added cost) were nearly as expensive as a full-time special class ($4733 total cost and $3083 added cost). Much of the cost of the "mainstream" placements was not in the special education budget, but in the regular education budget (e.g., the cost of the time spent by regular education teachers who teach handicapped children in the regular education classroom). Mainstreaming, as currently implemented, should not be looked upon as a way to reduce costs, but rather should be used when it is the most appropriate placement for a child.

Within each handicap, total cost per pupil varied widely depending on the educational placement. Similarly, within each educational placement, there was a great variation in total cost per pupil depending on the child's handicapping condition.

Within the highest-cost handicap category--functionally blind children--the cost varied from $11,189 per pupil receiving itinerant special teacher services down to $5966 per pupil in a full-time special class. Within the lowest-cost handicap category--speech impaired children--the total cost per child in regular class who received only speech therapy was $2244, whereas the cost per speech impaired child in a full-time special class was $5439. Within the full-time special class placement, the cost per educable mentally retarded child was $3265, whereas the cost per severely mentally retarded child was $7695.

The message is that if only age level, or only handicapping condition, or only type of placement, is considered in estimating the average

total cost per child, the estimate will not indicate the thousands of dollars of variation in cost per child within each of the age level, handicap, and placement categories, and therefore will not differentiate among districts whose needs may depart sharply from the average. If one district has a disproportionate number of severely handicapped children who need high-cost placements, for example, it will need higher than average funding per child.

We indicated above that it cost an estimated 2.17 times as much to educate the average handicapped child as it did to educate the average nonhandicapped child in 1977-1978. This cost weighting factor varied by age level from 1.98 at the elementary level to 2.48 at the secondary level. It varied by type of handicap from 1.37 for speech impaired children up to 5.86 for functionally blind children. It varied by type of educational placement from 0.55 for students working full time under the auspices of the special education program rather than attending classes, up to 3.24 for students in special day schools for only handicapped pupils. The highest cost category, considering type of handicap and educational placement combined, was the functionally blind child in regular education class receiving itinerant special teacher services at a cost-weighting factor of 6.78 (a total cost of $11,189 per child during the 1977-1978 school year).

ACKNOWLEDGMENTS

We are grateful to many people and organizations who cooperated and assisted in this and previous related projects. Foremost is the Office of Special Education of the U.S. Department of Education, whose support made this study possible. The cooperation and assistance of Robert Herman, Garry McDaniels, and Max Mueller are especially appreciated.

The state directors of special education from California, Indiana, Michigan, Minnesota, Montana, New Jersey, New York, Oklahoma, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, and Texas have cooperated throughout this and related studies. They provided data to help in the selection of a stratified probabilistic sample of local education agencies, assisted in gaining the cooperation of the selected localities, and provided data on state education agency costs of education for handicapped children.

We received excellent cooperation and generous assistance from each of the 50 local education agencies in which we collected the original data. The 57 intermediate or cooperative regional education and related service agencies affiliated with these local education agencies were also extremely helpful.

The National Association of State Directors of Special Education advised us on ways to improve our interview guides, and the association's support helped us to gain the cooperation of the states.

Our project advisers and consultants, Glenda Gay, Barbara Keogh, Michael Kirst, Deborah Priddy, Richard Rossmiller, and Frederick Weintraub, have been very helpful in suggesting improvements in our data collection and analysis techniques.

We are especially grateful to Jay Sumner, who designed the statistical sampling method; to Jim Hyman, Lee Laniear, and Rita Mahard, who assisted with data collection and coding; to Mike Emery, Tom Gayle, Wade Harrell, Clara Lai, and Iva McLennan, who did the computer data processing and analysis; and to Ethel Sniderman, who did an excellent job of preparing the various project reports. Finally, the suggestions for improvement made by the report's technical reviewers, Gene Fisher and Rich Shavelson, are gratefully acknowledged.

CONTENTS

PREFACE iii
SUMMARY v
ACKNOWLEDGMENTS xi

Section
I. INTRODUCTION 1
II. DESCRIPTION OF SAMPLE STATES AND LOCALITIES 6
III. DATA COLLECTION AND ANALYSIS METHODS 10
IV. PERSONNEL SALARIES AND WORKYEARS 14
V. EDUCATIONAL PLACEMENTS AND AGE LEVELS OF HANDICAPPED STUDENTS 16
VI. INSTRUCTIONAL COSTS OF SPECIAL EDUCATION TEACHERS 17
VII. SPECIAL EDUCATION AIDE COSTS 18
VIII. INSTRUCTIONAL COSTS OF REGULAR EDUCATION TEACHERS AND AIDES 19
IX. COSTS FOR RELATED SERVICES PERSONNEL 23
X. SCREENING COSTS 25
XI. ASSESSMENT COSTS 27
XII. ADMISSION AND IEP DEVELOPMENT COSTS 29
XIII. STAFF INSERVICE TRAINING COSTS 30
XIV. TECHNICAL ASSISTANCE COSTS 31
XV. TRANSPORTATION COSTS 32
XVI. OTHER COSTS OF EDUCATING HANDICAPPED CHILDREN 34
XVII. OTHER COSTS OF EDUCATING NONHANDICAPPED CHILDREN 36
XVIII. TOTAL COST OF REGULAR EDUCATION 37
XIX. TOTAL AND ADDED COSTS OF SPECIAL EDUCATION 39
XX. TOTAL AND ADDED COSTS OF SPECIAL EDUCATION BY AGE LEVEL, HANDICAP, AND TYPE OF EDUCATIONAL PLACEMENT 42

XXI. COST WEIGHTING FACTORS BY AGE LEVEL, HANDICAPPING CONDITION, AND TYPE OF EDUCATIONAL PLACEMENT 49

XXII. TOTAL COST OF SPECIAL EDUCATION BY SIZE OF LEA ENROLLMENT 54

I. INTRODUCTION

Information about the cost of special education is needed to aid in determining the levels of financing required to provide an appropriate education for handicapped children, to facilitate setting policies on service requirements and related matters by enhancing understanding of the costs of different types of services and educational placements, and to allow adjustment of state and federal special education finance formulas to match local need and to reduce fiscal incentives for inappropriate classification and placement of children.

A major study of the cost of special education was essential for three reasons: Recent federal and state court rulings and legislation have resulted in rapid expansion of special education programs; knowledge of cost that would be useful in deciding on special education policies and funding levels was deficient because research conducted before this study was limited and inadequate; and education agencies' collection and reporting of data on the cost of special education has been inadequate.

The 1975 Federal Education for All Handicapped Children Act, P.L. 94-142, as well as recent federal and state court rulings and legislation, mandated and stimulated the provision of appropriate special education for all handicapped children. These rulings and legislation greatly affected both the special education service delivery system and the total cost of special education. Ongoing reforms in the delivery system for special education services have major implications for cost.

Special education costs and finance policy can strongly influence implementation of desired reforms in the special education delivery system. Consequently, the cost of special education is an especially relevant policy issue at this time.

Several studies on the cost of special education have been conducted in recent years,[1] but their results have been of limited usefulness. Most were small studies conducted in limited geographic areas (such as a single state), and hence were not generalizable. The few multistate studies used aggregated reported data or subjective estimates, or used a nonrepresentative sample, rather than collecting detailed new empirical data from a nationally representative sample of localities.

Local education agencies seldom compile and report cost data separately for a particular type of educational placement for a particular type of handicapped child. Also, before this study the available data invariably combined some expenditures for handicapped children with those for nonhandicapped children and combined some expenditures for one type of special education placement with those for another. Hence, research was needed to collect and analyze new expenditure and resource-use data from local education agencies to learn the costs of providing various types of special education and related services.

OBJECTIVE OF THE STUDY

The objective of the study is to assist in the formulation of policies and the allocation of resources for the education of handicapped

[1] For a review of these prior studies, see J. S. Kakalik, Issues in the Cost and Finance of Special Education, The Rand Corporation, P-6217, September 1978.

children by providing accurate information on the cost of various types of special education and related services.

The study uses data collected in person from a nationally representative sample of localities of various sizes during the 1977-1978 school year.[2] The study was designed to answer the following questions:

1. What are the total costs of special education and related services for the following categories: various age levels; various handicapped populations; various educational placements; and various sizes of school districts?
2. What are the costs of such types of services for handicapped students as assessment and placement, instructional services, related services, and administrative services?
3. What are the added costs of special education and related services for handicapped children above the cost of regular education services for nonhandicapped children?

This study is concerned with the costs of special education and related services actually provided to handicapped children. Policy concerns that are beyond the scope of this study include: the amount of funding required to provide all needed services or the most effective services; the types of services that should be provided to various categories of handicapped children if available funding is insufficient to provide all needed services; the funding roles of different levels of

[2] Data collection and some preliminary data analysis were conducted under Grant Nos. G007701354 and G007902507 from the U.S. Department of Education, Office of Special Education. Final data analysis was conducted under Contract No. 300-79-0733 from the U.S. Department of Education, Office of Special Education.

government; and the design of state and federal fund-distribution formulas. However, the results of this cost study can be helpful in addressing these policy concerns in the future.

OVERVIEW OF FINDINGS

For the 1977-1978 school year, total nationwide expenditures for the "added cost" of special education (those costs above the cost of regular education) were over $7 billion. The total cost of special education and related services per handicapped child served in 1977-1978 was an estimated $3577. This was 2.17 times greater than the cost of regular education per nonhandicapped child. The added cost of special education and related services above the cost of regular education per nonhandicapped children was an estimated $1927 per handicapped child served.

In the three-year time span from the 1977-1978 school year to the 1980-1981 school year, the estimated annual current expenditures per pupil in average daily attendance in public elementary and secondary day schools increased 37 percent.[3] Assuming that both the cost of regular education per pupil and the cost of special education per pupil increased by the same 37 percent during that period, then over $10 billion was spent nationwide in the 1980-1981 school year for the added cost of special education. For that school year, total and added costs of special education and related services per handicapped pupil were an estimated $4898 and $2638, respectively.

---

[3] National Center for Educational Statistics, "Statistics of Public Elementary and Secondary Schools: 1977-1978 School Year," p. 34, and "Estimates for Financial Statistics of Public Elementary and Secondary Education: 1980-1981 School year," Table 3 (Draft).

OUTLINE OF THE REPORT

Sections II and III, respectively, describe the selection of a nationally representative sample and the data collection and analysis methods. Section IV discusses personnel salaries and work-years. Section V summarizes the educational placements and age levels of handicapped students served. Sections VI to XVII discuss the estimated costs of various types of special education and related services. Sections XVIII to XXI summarize the estimated total and added costs of special education and related services, as well as cost-weighting factors. Finally, Section XXII presents the variation in the total cost of special education by size of school district enrollment.

The much more detailed findings that form the basis for this summary report are presented in a separate Rand publication, N-1792-ED, The Cost of Special Education.

II. DESCRIPTION OF SAMPLE STATES AND LOCALITIES

A stratified probabilistic sample of education agencies was selected to be representative of the nation, the variety of local conditions that influence the provision of special education and related services, and the range of age levels, handicapping conditions, and educational placements found in special education programs. We sampled and collected empirical data in person from 14 states, 46 localities within these states, and nearly 900 teachers within these localities.

The sample consisted of all publicly provided nonresidential special education and related services programs serving all handicapped children from a "locality," which was defined as a geographic boundary of the local education agency (LEA) selected to be in the sample. If any of the children from the locality (i.e., who lived within the boundaries of the sample LEA) were served by some other intermediate, cooperative, regional, or state agency, then the sample of agencies included that other agency. However, the sample of children served by the other agencies included only children from the sample LEA.

The localities in the sample consisted of 42 unified school districts, four elementary districts and their four associated secondary districts, and 22 intermediate education agencies. In addition, the sample included 35 cooperating LEAs, state-operated programs, and other organizations that provided services to students who resided in the 46 localities. Given the amount of funding available for this project, the size of the sample was as large as it could be and still allow us to collect high-quality data in each locality. The probabilistically

selected sample is nationally representative from a statistical viewpoint and permits estimates to be made about the cost of special education and related services in the nation.

The 46 localities were probabilistically selected to be representative on the following variables: geographic region, total state school enrollment, population density, personal income per capita, average enrollment per LEA, type of state special education funding formula, and percentage of special education funds from local sources.

In selecting the LEAs, we drew a stratified probabilistic sample from the set of all unified LEAs plus all nonunified elementary LEAs within each of the 14 states. If we selected a nonunified elementary district, then we also selected the corresponding secondary LEA. In selecting localities within states, districts were stratified by total enrollment, per capita income, percent minority enrollment, and the degree to which they were urban or rural.

The U.S. Office of Special Education requested that we exclude districts that were not providing even minimally comprehensive programs for handicapped children. Accordingly, we applied four comprehensiveness criteria to screen out certain districts: those that served, or arranged with other districts to serve, only zero, one, or two handicaps (including speech therapy); less than 4 percent of the district's enrollment; handicapped students in only one educational placement; or handicapped students of only one age level. The districts excluded by these criteria were typically small, remote rural districts. The districts that passed the screens represent 96 percent of the special education students in the nation--a statistically representative sample that should be adequate for the purposes of most readers.

The 46 localities were well distributed geographically: 9 were in the northeast census region, 12 in the southern region, 14 in the north-central region, and 11 in the western region.

The sample included 18 major urban localities (defined as urban districts with student enrollments of 15,000 or more), 14 rural districts (defined as districts with student enrollments of less than 2,500 that were located at least 50 miles from an urban center of 100,000 or more population and at least 50 miles from each of the three largest cities in the state) and 14 residual category localities (defined as neither major urban nor rural.)

In terms of 1974 personal income per capita, the localities ranged from a low of $3200 to a high of $6100, with a weighted average of $4993. (1978 data were not available for the localities.) Nationwide, the 1974 average was $5434.

The 1977-1978 elementary and secondary school enrollment in our sample LEAs ranged from a low of 91 to a high of over 200,000 pupils. Fifteen were districts of less than 2500 enrollment. Of the 23 U.S. cities with a total population of over 500,000 in 1977, five were in our sample.

The minority school enrollment in the sample localities ranged from 0 to 86 percent, with a weighted average of 19 percent. Nationwide, the percentage was known to be 20.2.

The average teacher's salary without fringe benefits ranged from a low of $9,000 to a high of $19,000 per year for the localities in the sample, with a weighted average of $14,949. The comparable national

average for the 1977-1978 school year was $15,027, according to the National Center for Educational Statistics.

III. DATA COLLECTION AND ANALYSIS METHODS

In estimating the total cost of special education and related services, we took the types of service one at a time. For example, total cost was estimated separately for screening for handicapping conditions, preparing individualized education programs, and providing direct instructional services. In arriving at the total costs, we estimated the cost per child for each service by age level, handicapping condition, and type of educational placement. This was done in three major steps. First, we estimated the minutes of each type of service per child (or equivalently, the full-time-equivalent--FTE--personnel per child) in each district, for each different type of personnel, and for each age level, handicapping condition, and type of educational placement. Second, we took the sample weights and salaries and fringe benefits per FTE staff member and estimated the national average cost for that particular service and type of personnel. Third, we estimated the support services costs (such as for facility operations and district administration) and nonpersonnel costs (such as for instructional supplies per handicapped pupil) by age level, handicapping condition, and type of educational placement.

Two major steps were required in calculating the added cost of special education and related services per handicapped child above the costs of regular education per nonhandicapped child. First, we estimated the total cost of regular education per nonhandicapped child from detailed data collected in this study. Second, we estimated the added cost of special education and related services by subtracting the

total cost of regular education per nonhandicapped child from the total cost of special education and related services per handicapped child.

After defining the program by its services, its types of students, its personnel and other resource requirements, we determined the cost of the program on a comparable basis across districts by using national average salaries developed from our sample data to calculate personnel costs. We used standard prices or salaries for each specific type of personnel in this study because we needed to be able to compare programs across districts without having local salary variations obscure differences among programs. When comparing alternative programs across districts nationwide, the use of national average salaries and national average work-hours per year allows the comparison of service levels of programs consistently across districts using the same scale. However, the actual costs in individual localities may justifiably vary from our nationwide average estimates. Our data base also contains local salaries, and those can be used for specialized analyses if desired in the future.

All education agency costs are included in the analysis except for the costs of summer and adult evening school and the added costs of other target population programs, such as those for disadvantaged and bilingual children. No costs were counted more than once; for example, any duplicate costs of new building construction and debt retirement were not double-counted. All estimates are per child enrolled, not per child in average daily attendance, because student enrollment data were more readily available by type of handicapping condition, age level, and type of educational placement. The estimated cost of special education

included all the costs for all types of services provided for handicapped children whether or not they were paid for by the "special education" budget.

Data were collected and analyzed for prekindergarten, elementary, and secondary age levels, and for the following categories of handicapping condition: learning disability, educable mental retardation, trainable mental retardation, severe mental retardation, serious emotional disturbance, profound deafness, partial hearing, functional blindness, partial sightedness, orthopedic impairment, other health impairment, speech impairment, and multiple impairment.

Data were collected and analyzed for several types of educational placements: full-time regular education class plus indirect services only, regular education class plus special related services only, regular education class plus itinerant special instruction, regular education class a majority of the time plus part-time special class, special education class a majority of the time plus part-time regular education class, full-time special class, special public day school for only handicapped children, homebound instruction, short-term hospital instruction, and full-time work under the auspices of the special education program instead of class attendance. The study did not include any private or residential placements.

Data were collected and analyzed for various types of direct educational and related services including: instruction by special education teachers and aides, services by regular education teachers and aides (including extra time spent on handicapped children), adapted physical

education, counseling, occupational therapy, physical therapy, medical-related services, mobility training, psychological services, special vocational services, social services, and speech therapy.

Indirect services on which data were collected and analyzed included screening for handicapping conditions, assessment of handicapping conditions and service needs, admission and placement into a special education program, individual education program development, technical assistance to professionals regarding special education, staff in-service training, supplies and equipment, transportation, food services, facility operations and maintenance, and district and school administration.

The probabilistic sampling technique used to select the sample localities allowed the calculation of a weighted national average for all types of costs for all groups of students classified by age level, handicapping condition, type of educational placement, size of school district, and type of service. Viewed in simple terms, the weight we assigned can be interpreted as the total number of handicapped children in the nation that the average individual child of a particular type in the sample locality represented.

IV. PERSONNEL SALARIES AND WORKYEARS

Based on nationwide estimates obtained by appropriately weighting 1978 data from our national sample, all teachers combined had an average annual salary of $14,949. Special education teachers and aides earned an average of $13,877 and $4,854 per year, respectively. The lowest-paying 10 percent of the districts in our sample paid their professionals less than $11,500, which was approximately half the salary paid by the highest-paying 10 percent. Related-services personnel typically were paid salaries that were comparable to those of teachers, although there were exceptions. For example, speech therapists averaged $14,727, psychologists $18,737, and medical doctors $40,461 per year.

Fringe benefits averaged 18 percent of salary for teachers and 29 percent for aides (higher for aides because certain fringe benefits such as health insurance were usually a fixed dollar amount per staff member).

Nationwide, teachers worked an average of 74,808 minutes per year. Based on a typical 180-day workyear, this represented approximately a seven-hour workday.

All teachers averaged ten years' experience; special education teachers averaged seven years' experience, which accounted for their lower average salaries. The percentages of all teachers and special education teachers with Master's degrees or the equivalent number of credits was approximately the same, 46 percent and 48 percent, respectively. Fully 70 percent of the speech therapists and 98 percent of the psychologists had advanced degrees or the equivalent number of credits.

In districts that paid special education teachers a bonus above the standard salary schedule, the extra pay averaged $371 per year. The average extra pay for all districts, including those that did not pay such a bonus, was $96 per year.

V. EDUCATIONAL PLACEMENTS AND AGE LEVELS OF HANDICAPPED STUDENTS

Of all handicapped students in special education in public schools nationwide during the 1977-1978 school year (excluding public residential schools and institutions), 2 percent were preschool age, 66 percent were elementary age, and 32 percent were secondary age. Of those handicapped students served in public schools, 1 percent were in regular education class full time and received indirect services only, 41 percent were in regular education class and received special related services only (including speech impaired children who received speech therapy only), 2 percent were in regular education class and received itinerant special teaching services, 31 percent were in a regular class a majority of the time and in a special class a minority of the time, 11 percent were in a special class a majority of the time, 5 percent were in a special class full time, 5 percent were in a special day school for only handicapped pupils, and 3 percent were homebound. Of the special education students, 87 percent spent at least part of the school day in regular education programs with nonhandicapped children, and they were usually counted as part of the normal class size. However, the educational placement of the children depended significantly on the nature and severity of their handicapping condition. For example, 98 percent of the children who were speech impaired and had no other handicap were in a regular education class full time and received speech therapy only, while 91 percent of the severely mentally retarded children were placed in special day schools that served only handicapped children.

VI. INSTRUCTIONAL COSTS OF SPECIAL EDUCATION TEACHERS

The total salary and fringe benefits cost for instructional services provided by special education teachers was estimated to be $551 per handicapped child during the 1977-1978 school year. This estimate includes the cost of all paid work-time by special education teachers, with the exception of time spent on screening children to detect potential handicaps; assessing the needs of handicapped children; admitting children to special education, placement, and individual education program development; special education inservice training; and consulting with other professionals relative to special education.

The estimated cost for instructional services varied from $0 for handicapped students placed in a regular education class full time up to $1578 per handicapped student in a full-time special class. In general, children served in less restrictive educational placements received less instructional service time from special education teachers.

The more severely handicapped students received the most instructional services from special education teachers, with the highest cost per child estimated to be $2336 per year for profoundly deaf children and $2516 per year for functionally blind children. The least instructional services went to speech impaired children, estimated to cost only $6 per year.

VII. SPECIAL EDUCATION AIDE COSTS

The total salary and fringe benefits cost for special education aides was estimated to be $106 per handicapped child per year. This varied from $0 for handicapped students placed in a regular education class full time up to $598 per child who was placed in a special day school for only handicapped children. In general, those children served in less restrictive educational placements were provided less aide assistance. The most severely handicapped students received the most special education aide assistance, with the highest costs per child estimated to be $1210 per severely mentally retarded student and $1143 per multiple handicapped child per year. The least special education aide assistance went to other health impaired children, estimated to cost $5 per year. Considering both the type of handicap and the educational placement, the highest special education aide cost was $1586 per year per multiple handicapped child placed in a special day school.

VIII. INSTRUCTIONAL COSTS OF REGULAR EDUCATION TEACHERS AND AIDES

In estimating the total cost of special education for handicapped children, we found it necessary to estimate the cost of services provided by regular education teachers and aides during any time the handicapped pupil spent in the regular education classroom. In addition, the cost of regular education was needed to estimate the added cost of special education for handicapped pupils.

The national average school year was estimated to be 177 days. The length of the school day was approximately 3.3 hours at the preschool level, 5.6 hours at the elementary level, and 6.0 hours at the secondary level during 1977-1978.

To estimate the cost of services provided to handicapped students by regular education teachers, it was necessary to estimate the proportions of time that different types of handicapped students spent in the regular classroom (as opposed to the special education classroom). Handicapped students who were in a regular class full time, and received indirect or related services only, spent no time with special teachers and hence incurred the same regular education teachers' cost as non-handicapped students (with the exception of certain special services provided by the regular education teachers that are described below). Students served by an itinerant special teacher spent an estimated 8 percent of their school week with that teacher. Children who were in regular class the majority of time, plus a part-time special class, spent 22 percent of their time in that special class on the average. Children who were in the special class the majority of time with part-time regular class placement generally spent 77 percent of their time in

the special education class. Homebound students averaged 46 percent of the school year at home and the remainder of the school year at the public school facility. Short-term hospital students spent 18 percent of their time at the hospital during the school year.

The estimated total cost per nonhandicapped pupil for regular education instructional activities was $761 per year. This varied by age level from $632 at the preschool level to $708 at the elementary level to $808 at the secondary level. Before dividing the cost of the full-time-equivalent regular education teachers by the number of full-time-equivalent regular education children, we first excluded the cost of special services to handicapped children provided by regular teachers such as assessment, screening, special education inservice training time, and extra time spent on the handicapped children in the regular education classroom above and beyond the average time spent on nonhandicapped children.

The regular education teacher instructional cost per handicapped pupil per year (not including the costs noted above) varied considerably by handicap, from $1 for severely mentally retarded students who were almost never "mainstreamed" into a regular education classroom up to $694 per year for speech impaired children who were almost always served in the regular classroom full time with related speech services only. The range by type of educational placement was from $0 for children in special classes and special day schools up to $761 per year for those

handicapped students who were placed in regular classes full time and received indirect services only.[1]

Regular education aides cost an average of $8 per year per non-handicapped child in 1977-1978. This figure does not include the cost of aides paid for by "other target population" programs such as compensatory education. The cost of regular education aides for handicapped children during the time they were in the regular education classroom was $8 per year or less on the average for all types of handicaps and educational placements.

When handicapped children were placed in regular education classrooms, the regular education teacher sometimes spent extra time on the handicapped child above and beyond the time spent on the average non-handicapped child. The average handicapped child received five minutes per day extra attention from regular education teachers at an estimated extra cost per year of $206.[2] This was above and beyond any other costs reported for any other services. This extra cost varied by type of handicap from $5 extra per year for other health impaired children up to $928 extra per year for functionally blind children. It varied by type of educational placement from $0 for those students who were not served in a regular education classroom at all up to $746 extra per year for those students in regular education classes who were also served by an itinerant special education teacher. Emotionally disturbed and

---

[1] When a handicapped student spends time in a regular education classroom, a portion of the regular education teacher's time is devoted to serving that handicapped child. Consequently, a portion of the cost of that regular teacher should be included in the total cost of educating the handicapped child.

[2] The amount of extra time spent on handicapped children was estimated by the teachers we interviewed; we recognize that those teacher estimates may not be entirely accurate, but they are both reasonable and the best information available.

functionally blind children were the two categories of handicaps that received the most extra attention. However, most handicapped children placed in regular education classrooms received very little extra attention from the regular education teacher, as the average of five minutes extra per day for all types of handicapped children combined reveals.

We estimated an extra expenditure by regular education aides of $14 per handicapped child per year and an extra amount of service of one minute per day per special education child.

IX. COSTS FOR RELATED SERVICES PERSONNEL

Various types of related services personnel often provided services for special education students. Services most frequently provided were adaptive physical education, counseling, nursing, occupational therapy, physical therapy, psychological services, social work services, special vocational services, and speech therapy services. Services provided by some of these types of personnel, especially by counselors, librarians, and school nurses, were also provided to nonhandicapped students.

The 1977-1978 national average cost of various related services was estimated to total $61 per nonhandicapped child and $191 per handicapped child, including both salary and fringe benefits. These cost estimates were for all time spent by all types of related services personnel, except for time spent on screening, assessment, admission of children to special education, individual education program (IEP) development, staff inservice training, and consulting with other professionals relative to special education. (Those related service costs that were excluded here are discussed separately later.) Also excluded from the above cost estimate was all time spent providing related services for "other target population" programs such as those for disadvantaged or bilingual children.

For nonhandicapped children, the three types of personnel who provided the greatest amount of related services were counselors ($29 per year), librarians ($22 per year), and nurses ($4 per year). For handicapped children, the largest amount of service per child was provided by speech therapists ($81 per year for every child in special education,

whether or not that child received speech therapy). Other types of personnel who provided major related services for handicapped children included adaptive physical education specialists ($5 per year for every child in special education), counselors ($29 per year), librarians ($22 per year), nurses ($8 per year), occupational therapists ($3 per year), physical therapists ($5 per year), psychologists ($6 per year), social workers ($9 per year), special vocational personnel ($12 per year), and related services aides ($4 per year).

The amount of related services per pupil varied greatly by type of educational placement. Nonhandicapped students received $61 per year of these related services, as did handicapped students placed in regular education classes full time who received indirect special services only. The largest amount of these related services by type of educational placement went to students in special day schools for only handicapped students, at an estimated cost of $630 per year.

Considering the costs by type of handicap, the lowest costs were for services to learning disabled students ($120 per year) and other health impaired students ($123 per year). Speech impaired students received $196 per year in related services, including speech therapy. The greatest estimated cost was for children with multiple handicaps ($1179 per year). In general, the more severe the handicap, the more related services provided.

X. SCREENING COSTS

All or part of the general student population may be screened each year to identify children who might benefit from screening--namely those who need special education and related services and those with less than handicapping conditions whose parents may need to obtain certain assistance, such as glasses, that will enable their children to make the most effective progress in school. Screening does not include time spent assessing students who are referred as possibly handicapped, but rather includes the brief screening of segments of the entire student population, such as all students at a certain grade level.

Nationwide, 50 percent of the student population was screened for hearing impairment during the 1977-1978 school year. This screening was usually done by nurses or speech therapists and took an average of eight minutes per student screened at a cost of $1.48. When these costs were allocated to the categories of students receiving the benefits, the cost for the average nonhandicapped student was 85 cents, and the cost for the average deaf or partial hearing student was approximately $22.

About half of the student population was also screened for vision impairments, usually by nurses. This took an average of eight minutes and cost $1.73 per child. When these costs were allocated to the categories of students receiving the benefits, the cost for the average nonhandicapped student was 84 cents, and the cost for the average visually handicapped student was approximately $6.

Physical screening was less prevalent, encompassing only 19 percent of the general student population. The screening was usually by nurses

or medical doctors and took an average of 29 minutes per student at a cost of $5.84. Considering that not all students were screened, this amounted to approximately $1 for the average student per year.

Approximately 12 percent of the general student population was screened by speech therapists for speech impairments. This took 15 minutes per student on the average at a cost of $3.51. Considering that not all students were screened each year, and that only handicapped students benefited from the program, the cost of the screening program for the average handicapped student was approximately $6 per year.

Nationwide, less than 4 percent of the general student population was screened for learning disabilities or mental retardation. None of the districts in our sample screened for emotional disturbances. The mental screening was usually done by psychologists or teachers and took an average of 21 minutes per student at a cost of $5.20.

In total, considering all five types of screening combined, the cost for the average nonhandicapped student in the nation was only $2.66 per year, and for the average handicapped student was only $8.34 per year.

XI. ASSESSMENT COSTS

Children's handicapping conditions and service needs in the special education and related services areas were assessed both for children who were known to be handicapped and for children who were referred as possibly handicapped.

Assessment by related services professionals and nonclassroom teachers such as psychologists, speech therapists, and homebound teachers took 164 minutes on the average and cost $43 per child, including salary and fringe benefits. The lowest cost per assessment was $8 by adaptive physical education teachers and the highest was $108 by psychiatrists. The average special education child nationwide received 1.6 assessments per year by all related services professionals and nonclassroom teachers combined. The total cost per child per year for all assessments by all types of related services professionals and nonclassroom teachers combined averaged $72.

Related services aides assessed less than 1 percent of the handicapped children.

Assessment by special education teachers took 233 minutes per child on the average (about a half day) and cost $51. The percent of handicapped children assessed each year by special education classroom and resource room teachers was 100 percent for the children who received direct instructional services from these teachers, but was near zero for certain educational placements (such as a full-time regular education classroom placement with special related services only). Considering that not every handicapped child was assessed by special education teachers, the cost per year for the average handicapped child was $26.

Only about 1.4 percent of the handicapped students had their special education and related services needs formally assessed by regular education teachers during the 1977-1978 school year.

Considering all types of personnel combined, the average handicapped child was assessed 2.1 times during the year, at a combined total cost per child of $100, including salary and fringe benefits. This varied by age level from 1.8 assessments per year ($95) for preschool children up to 2.5 assessments per year ($127) for secondary age children. It ranged by handicap from 1.0 assessment per year ($36) for a speech impaired child up to 3.5 assessments per year ($198) for an emotionally disturbed child. It ranged by educational placement from 1.0 assessment per year ($33) for children who were in a regular education class full time and were receiving special related services only, up to 2.6 assessments per year ($190) for children in special day schools for only handicapped children.

XII. ADMISSION AND IEP DEVELOPMENT COSTS

Children who are referred to the special education program because they may have some type of physical or mental impairment must proceed through an admission, placement, and individualized education program (IEP) development process prior to the provision of special education and related services.

The estimated cost for the admission and IEP development process, excluding assessment costs, was $103 per child in 1977-1978. This cost included the salaries and fringe benefits of all personnel attending the meetings, the costs of documenting the results of the meetings and decisions, and the time spent writing and revising the IEP for each child.

The typical admission and IEP development process in the average district involved three people, usually one teacher, one administrator, and one related services person.

The average admission meeting took 42 minutes. If a special education teacher was involved in preparing an IEP for the child, that teacher generally spent about three hours on the IEP.

While the cost per child averaged $103, it ranged by type of handicap from $60 for speech impaired children up to $177 for partially sighted children, and it ranged from $33 for each child placed in a short-term hospital up to $170 for each child placed in a regular education class who received special indirect services only.

XIII. STAFF INSERVICE TRAINING COSTS

Nearly all local education agencies had an inservice training program for professional staff members to help them maintain and improve their teaching and related service skills in the area of special education.

The total costs for inservice training in special education and related services provided to education agency staff members during the 1977-1978 school year was estimated to be $40 per special education student. This included $27 for the time spent during work hours by the staff who received the inservice training, $7 for the time spent by the education agency staff who provided the inservice training, and $6 for other miscellaneous inservice training costs such as consultants and materials.

XIV. TECHNICAL ASSISTANCE COSTS

Various types of special education teachers and other related services personnel (e.g., psychologists) often gave technical assistance in the area of special education to other professional staff members within a district.

The national average cost of giving and receiving technical assistance in the area of special education by all types of professional staff members was estimated to be $135 per handicapped child per year in salary and fringe benefits. The largest components of this total were for special education teachers ($38), regular education teachers ($40), and psychologists ($16).

XV. TRANSPORTATION COSTS

Pupils were provided transportation by education agencies for a number of reasons. Both handicapped and nonhandicapped students sometimes lived too far from school to walk. Some handicapped students were provided transportation because they had some physical, mental, or behavioral disorder that made it impossible or inadvisable to have them come to school on their own. Two types of transportation costs were estimated. The first, called special transportation, was for transportation provided at education agency expense that involved handicapped students only. The second, called regular transportation, was for all transportation that involved either nonhandicapped students or both handicapped and nonhandicapped students in the same vehicle.

During the 1977-1978 school year, the estimated cost of regular transportation divided by the total number of nonhandicapped children (whether or not they were provided regular transportation) was $73 per year.

The estimated cost of both regular and special transportation provided for the average handicapped student was $159--$48 for regular and $111 for special transportation. The latter two figures would be higher if we counted only children who actually received transportation at education agency expense: $187 for regular and $720 for special transportation.

The total cost of regular and special transportation combined varied from $0 per handicapped child working full time and not attending classes, up to $581 per handicapped child in a special day school.

(These estimates are averages for all handicapped children, whether or not they received any transportation at education agency expense.) The total transportation cost per child by type of handicap varied from less than $100 per year for speech impaired and other health impaired children, up to $980 per year for children with multiple handicaps. Again, the cost per child increased with the severity of the handicapping condition.

XVI. OTHER COSTS OF EDUCATING HANDICAPPED CHILDREN

The national average estimated cost of instructional supplies and texts (including both those used in regular and special education classrooms) totaled $55 per handicapped child. Supplies for related services staff and nonclassroom teachers cost an estimated $10. Instructional equipment cost $21 and equipment for related services staff and nonclassroom teachers cost $7 per handicapped child. Transportation for related services staff and nonclassroom teachers cost $3. The estimated cost of special education administrators and secretaries was $76. Other special education nonclassroom administrative costs totaled $11. Special education program specialists cost an estimated $9. Related services staff and nonclassroom teacher administrators, secretaries, and clerks cost $18. General district administration per handicapped child cost an estimated $200.[1] School administration cost an estimated $209.[1] Food services for handicapped children cost an estimated $88. Facility operations and maintenance costs totaled $378.[2] Facility modification and improvement for special education cost an estimated $12, whereas facility modification and improvement of general education facilities

---

[1] These administrative costs were totaled by age level for each district and then allocated equally to each FTE teaching and related services professional staff member by age level. We then estimated the cost per handicapped or nonhandicapped child by multiplying the administrative costs per FTE staff member times the average fraction of an FTE staff member per student by age level, handicap, and placement.

[2] These facility operations and maintenance costs were totaled by age level for each district and then allocated equally to each FTE teacher. We then estimated the cost per handicapped or nonhandicapped child by multiplying the facility operations and maintenance costs per teacher times the fraction of an FTE teacher per student by age level, handicap, and placement.

cost an estimated $44 per handicapped child. (To avoid double-counting of costs of new facility construction and debt retirement, the $152 cost of new facility construction for both special and general education per handicapped child was not included.) Interest and debt retirement cost an estimated $245 per handicapped child.[3] All other miscellaneous costs totaled $25 per handicapped child during the 1977-1978 school year.

---

[3] This estimate was made by allocating the total debt service cost for each district equally per FTE teacher. We then estimated the cost per handicapped or nonhandicapped child by multiplying the debt service cost per FTE teacher times the average fraction of an FTE teacher per student by age level, handicap, and placement.

XVII. OTHER COSTS OF EDUCATING NONHANDICAPPED CHILDREN

Cost estimates presented previously included the costs of all teachers, aides, related service personnel, and transportation for nonhandicapped children. This section contains estimates of all other costs of educating nonhandicapped children during the 1977-1978 school year.

Instructional supplies and texts cost an estimated $34 per nonhandicapped child per year and instructional equipment cost an estimated $14. Supplies and equipment combined for related services staff cost $3 per nonhandicapped child. Related services staff administrators, secretaries, and clerks cost an estimated $5. General district-level and school-level administrative costs were estimated to be $105 and $96 per nonhandicapped child, respectively. Food services cost $84. All facility operations, maintenance, and utility costs totaled $207 per child. Facility modification and improvement cost $26 (not including the $93 per child in new general education facility construction costs). Interest and debt retirement totaled $147, and all other miscellaneous costs were an estimated $23 per nonhandicapped child during the 1977-1978 school year.

XVIII. TOTAL COST OF REGULAR EDUCATION

The estimated total cost of regular education per nonhandicapped child during the 1977-1978 school year was $1650. This was $0 per pre-kindergarten child, $1500 per elementary age child, and $1782 per secondary age child. Table 1 gives a breakdown of our estimate of the total cost of regular education per nonhandicapped child by the type of cost (e.g., teachers, supplies, transportation). Nearly half--$761--of the total cost of regular education per nonhandicapped child went for

Table 1

COST OF REGULAR EDUCATION PER NONHANDICAPPED CHILD IN 1977-1978

Type of Cost	Cost per Year ($)
Regular education teachers	761
Facility operations and maintenance	207
Debt service	147
General district administration	105
School administration	96
Food services	84
Transportation	73
Related services personnel	61
Instructional supplies and texts	34
Facility modification and improvement	26
Miscellaneous costs	23
Instructional equipment	14
Regular education aides	8
Related services staff administrators, secretaries, and clerks	5
Related services staff supplies and equipment	3
Screening for nonhandicapping physical impairments	3
Total	1650

teachers' salaries and fringe benefits. Teaching aides and related services personnel (such as counselors, psychologists, and school nurses) accounted for $8 and $61 per nonhandicapped child, respectively. Transportation cost an estimated $73. General district-level and school-level administration cost an estimated $105 and $96 per nonhandicapped child, respectively. Food services cost $84, facilities operations and maintenance cost $207, and interest plus debt retirement cost $147. All other types of costs combined totaled $108 out of the grand total of $1650 per nonhandicapped child.

For readers who might be interested, we compared one of our estimates with a similar estimate prepared by the U.S. National Center for Educational Statistics (NCES). Because NCES does not fully separate the cost of special education and the cost of regular education from the total cost of general education, however, a valid comparison between Rand and NCES numbers can be made only for the total cost of general education. NCES data[1] show a figure of $1854 as the total general education expenditure per pupil enrolled in public elementary and secondary day schools during 1977-1978. This NCES estimate included all current expenditures, capital outlay, and interest. It is an average per enrolled pupil for all education costs of regular education, special education, and other target population programs combined. Using our sample data to make an estimate that is comparable in definition to that $1854 estimate by NCES, we arrive at a figure of $1878. The difference is 1 percent.

---

[1] The U.S. Bureau of the Census, Statistical Abstract of the United States, 1980, p. 153.

XIX. TOTAL AND ADDED COSTS OF SPECIAL EDUCATION

The estimated total cost of educating handicapped children during the 1977-1978 school year was $3577 per pupil. Table 2 gives a breakdown of this total by type of cost. Instruction by special education teachers and aides cost $551 and $106 per child, respectively, including salaries and fringe benefits. Instruction by regular education teachers cost an estimated $743 per handicapped child, of which $206 was for time spent above and beyond the average time spent per nonhandicapped child. Related services, such as physical therapy or speech therapy, cost an average of $191 per handicapped child. Assessment of handicapping conditions and special education needs cost an estimated $100 per child. Admission to special education, placement, and individual education program development cost $103 per child in salaries and fringe benefits. Technical assistance from one staff member to another regarding special education and related services cost $135. Regular and special transportation of handicapped students cost an estimated average of $48 and $111, respectively, for all handicapped pupils. Special education administrative costs were $87 per child. General district level administration and school level administration cost $200 and $209 per child respectively. Food services cost $88. Facility operations and maintenance costs totaled $378, and interest plus debt retirement was $245 per handicapped child. All other types of costs combined totaled $282 out of the grand total of $3577 per handicapped child.

The $3577 total cost of special education and related services per handicapped child was an estimated 2.17 times larger than the $1650

Table 2

TOTAL COST OF SPECIAL EDUCATION PER HANDICAPPED CHILD IN 1977-1978

Type of Cost	Cost per Year ($)
Regular education teachers' instructional services	743
Instructional costs of special education teachers	551
Facility operations and maintenance	378
Debt service	245
School administration	209
General district administration	200
Related services	191
Technical assistance to staff members	135
Special transportation	111
Special education aides	106
Admission, placement, IEP development	103
Assessment	100
Food services for handicapped children	88
Special education administrators and secretaries	76
Instructional supplies and texts	66
Regular transportation	48
Facility modification and improvement for general education	44
Staff inservice training	40
Miscellaneous costs	25
Instructional equipment	21
Regular education aides	19
Related services staff and nonclassroom teacher secretaries and clerks	14
Facility modification and improvement for special education	12
Special education nonpersonnel administrative costs	11
Related services staff and nonclassroom teacher supplies	10
Special education program specialists	9
Screening for handicapping conditions	8
Related services staff and nonclassroom teacher equipment	7
Related services staff and nonclassroom teacher administrators	4
Related services staff and nonclassroom teacher transportation	3
Total	3577

total cost of regular education per nonhandicapped child during the 1977-1978 school year. The added cost of special education and related services above the cost of regular education was an estimated $1927 ($3577 minus $1650) per handicapped pupil.

XX. TOTAL AND ADDED COSTS OF SPECIAL EDUCATION BY AGE LEVEL, HANDICAP, AND TYPE OF EDUCATIONAL PLACEMENT

Our cost estimate for the average of all handicapped students includes not only the high cost of severely handicapped students served in special schools, but also the fairly low cost of every speech impaired student and every temporarily homebound student served at any time during the school year.

For financing authorities such as state legislatures and local school boards to allocate funds effectively for special education and related services, it is desirable for them to know the cost per child by age level, handicap, and type of educational placement. Tables 3, 4, and 5 display both the total cost and the added cost of special education and related services per child above the cost of regular education for various combinations of age level, handicap, and type of educational placement.

By age level, the costs were a total of $3526 ($3526 added cost) at the preschool level,[1] a total of $3267 ($1617 added cost) at the elementary level, and a total of $4099 ($2449 added cost) at the secondary level per handicapped child.

By type of handicap, the range in the total cost per child was from a low of $2253 ($603 added cost) for speech impaired children up to $9664 ($8014 added cost) for functionally blind children. As indicated

[1] At the preschool level, the added cost equals the total cost since nonhandicapped children do not attend prekindergarten public school programs and hence the cost of regular education at the preschool level is zero. (The cost of preschool programs for other target populations, such as disadvantaged children, are not considered part of the cost of regular education).

Table 3

ESTIMATED TOTAL AND ADDED COST OF SPECIAL EDUCATION PER CHILD BY AGE LEVEL AND TYPE OF HANDICAPPING CONDITION IN 1977-1978

Handicapping Condition[a]	Age Level and Cost ($)							
	Preschool		Elementary		Secondary		All Ages Combined	
	Total	Added	Total	Added	Total	Added	Total	Added
LD	3392	3392	4488	2838	4856	2936	4525	2875
EMR	3465	3465	3958	2308	3684	2034	3795	2145
TMR	4715	4715	5078	3428	6008	4358	5519	3869
SMR	5352	5352	6013	4363	5935	4285	5926	4276
Emotional	3260	3260	5871	4221	6845	5195	6289	4639
Deaf	7676	7676	8523	6873	5200	3550	7311	5661
Partial hear	5853	5853	4861	3211	5204	3554	5091	3441
Blind	6603	6603	11725	10075	8917	7267	9664	8014
Partial sight	3254	3254	4063	2413	5253	3603	4519	2869
Orthopedic	5097	5097	3350	1700	3545	1895	3546	1896
Other health	2319	2319	2148	498	2748	1098	2502	852
Speech	2490	2490	2214	564	2580	930	2253	603
Multiple	9382	9382	7165	5515	7773	6123	7642	5992
All	3526	3526	3267	1617	4099	2449	3577	1927

[a]Handicapping conditions are defined in Sec. III.

Table 4

ESTIMATED TOTAL AND ADDED COST OF SPECIAL EDUCATION PER CHILD, BY AGE LEVEL AND TYPE OF EDUCATIONAL PLACEMENT, IN 1977-1978

Type of Educational Placement[a]	Age Level and Cost ($)							
	Preschool		Elementary		Secondary		All Ages Combined	
	Total	Added	Total	Added	Total	Added	Total	Added
Regular class plus:								
Indirect services	N.A.	N.A.	2362	712	2710	1060	2550	900
Related services	1871	1871	2231	581	2601	951	2267	617
Itinerant special teacher	1167	1167	5588	3938	4247	2597	5218	3568
Part-time special class	2307	2307	4481	2831	4916	3265	4709	3059
Special class plus part-time regular class	2311	2311	5038	3388	3778	2128	4345	2695
Full-time special class	5352	5352	5008	3358	3710	2060	4733	3083
Special day school	5841	5841	4444	2794	6669	5019	5352	3702
Homebound	1629	1629	2106	456	2660	1010	2228	578
Short-term hospital	1921	1921	1804	154	2310	660	1981	331
Full-time work	N.A.	N.A.	N.A.	N.A.	901	(-749)	901	(-749)
All placements	3526	3526	3267	1617	4099	2449	3577	1927

NOTE: N.A. = data not available for this combination of age level and placement.

[a]Educational placements are defined in Sec. III.

Table 5

ESTIMATED TOTAL AND ADDED COST OF SPECIAL EDUCATION PER CHILD IN 1977-1978 BY HANDICAPPING CONDITION AND TYPE OF EDUCATIONAL PLACEMENT

Handicapping Condition	Type of Cost	Type of Educational Placement										
		Regular Class Plus Indirect Services	Regular Class Plus "Related Services"	Regular Class Plus Itinerant Special Teacher	Regular Class Plus Part-time Special Class	Special Class Plus Part-time Regular Class	Full Time Special Class	Special Day School	Home-bound	Short-term Hospital	Full Time Work	All Placements Combined
LD	Total	2552	3338	4456	4714	4011	4432	7252	2268	NA	830	4525
	Added	902	1688	2806	3064	2361	2782	5602	618	NA	(-820)	2875
EMR	Total	3113	2488	3884	3874	4058	3265	3049	2629	2844	1069	3795
	Added	1463	838	2234	2224	2408	1615	1399	979	1194	(-581	2145
TMR	Total	NA	NA	NA	5283	5660	5853	5354	2400	NA	807	5519
	Added	NA	NA	NA	3633	4010	4203	3704	750	NA	(-843)	3869
SMR	Total	NA	NA	NA	NA	6600	7695	5997	2302	NA	NA	5926
	Added	NA	NA	NA	NA	4950	6045	4347	652	NA	NA	4276
Emot.	Total	3147	6501	7946	6904	5417	5750	6206	3167	2624	2899	6289
	Added	1497	4851	6296	5254	3767	4100	4556	1517	974	1249	4639
Deaf	Total	NA	9301	9276	5380	5963	7691	7909	NA	NA	NA	7311
	Added	NA	7651	7626	3730	4313	6041	6259	NA	NA	NA	5661
Part. Hear	Total	2181	2480	4701	6979	5901	6631	6896	2167	3273	NA	5091
	Added	531	830	3051	5329	4251	4981	5246	517	1623	NA	3441
Blind	Total	NA	NA	11189	9874	8779	5966	9126	NA	NA	NA	9664
	Added	NA	NA	9539	8224	7129	4316	7476	NA	NA	NA	8014
Part. Sight	Total	2936	2740	4097	6369	5711	5220	7913	2078	NA	NA	4519
	Added	1286	1090	2447	4719	4061	3570	6263	428	NA	NA	2869
Ortho	Total	2772	4884	4986	7175	5031	5495	5731	2137	1911	NA	3546
	Added	1122	3234	3336	5525	3381	3845	4081	487	261	NA	1896
OHI	Total	NA	2403	2021	4973	4937	4664	3676	2611	1951	NA	2502
	Added	NA	753	371	3323	3287	3014	2026	961	301	NA	852
Speech	Total	2477	2244	2360	4025	3500	5439	2936	1509	NA	NA	2253
	Added	827	594	710	2375	1850	3789	1286	(-141)	NA	NA	603
Multi	Total	NA	2004	NA	10187	8778	5183	9048	3376	1956	NA	7642
	Added	NA	354	NA	8537	7128	3533	7398	1726	306	NA	5992
All	Total	2550	2267	5218	4709	4345	4733	5352	2228	1981	901	3577
	Added	900	617	3568	3059	2695	3083	3702	578	331	(-749)	1927

in Table 3, the more severe the handicap of the average child in a category, the higher the average cost. For example, providing an education for severely retarded children cost $5926, while serving educable mentally retarded children cost $3795.

By type of educational placement, the range in total cost per child was from a low of $901 (a savings of $749 rather than an added cost) per handicapped child who worked full time under the auspices of the special education program rather than attending classes, up to $5352 ($3702 added cost) per child in a special day school for only handicapped children.

Other children in the lower-cost placements were in a regular class receiving indirect special services only ($2550 total cost and $900 added cost) or in a regular class receiving related services only ($2267 total cost and $617 added cost). The homebound placement ($2228 total cost and $578 added cost) and short-term hospital-bound placements ($1981 total cost and $331 added cost) were also lower-cost placements because the children were away from school for only a fraction of the year. Also, the short-term homebound and short-term hospital-bound children often received no related services from the school district and often did not have an individualized education program written for them.

Children in regular class who received itinerant special teacher services were in the second most expensive placement ($5218 total cost and $3568 added cost) and cost just slightly less than those in special day schools. The reason for the high cost of the itinerant special teacher placement was the expensive one-to-one teaching that was usually provided.

Two "mainstream" placements--regular class plus part-time special class ($4709 total cost and $3059 added cost), and special class plus part-time regular class ($4345 total cost and $2695 added cost)--were nearly as expensive as a full-time special class ($4733 total cost and $3083 added cost). Note that much of the cost of the "mainstream" placements was not in the special education budget, but in the regular education budget (e.g., the cost of the time required by regular education teachers who have handicapped children in the regular education classroom). Mainstreaming, as currently implemented, should not be looked upon as a way to reduce costs, but rather should be used when it is the most appropriate placement for a child.

Within each handicap, total cost per pupil varied greatly, depending on the educational placement. Similarly, within each educational placement, total cost per pupil varied greatly, depending on the child's handicapping condition. Table 5 shows the variation in total cost, considering both the type of handicap and the type of educational placement.

Within the highest-cost handicap category--functionally blind children--the cost varied from $11,189 per pupil receiving itinerant special teacher services down to $5966 per pupil in a full-time special class. Within the lowest-cost category--speech handicapped children--the total cost for children in regular class receiving speech therapy only was $2244; the cost for such children in a full-time special class was $5439.[2] Within the full-time special class placement, the cost

[2] The cost for homebound speech handicapped children was only $1509, which was less than the cost of regular education, because in our sample of school districts only preschool-age, speech-handicapped children were in homebound placement. It is reasonable to assume that

per pupil for educable mentally retarded children was $3265, whereas the cost per pupil for severely mentally retarded children was $7695.

The message is that if only age level, or only handicapping condition, or only type of placement, is considered in estimating the average total cost per child, the estimate will not indicate the thousands of dollars of variation in cost per child within each of the age level, handicap, and placement categories. Such an estimate may put districts with special needs at a disadvantage. If a district has a disproportionate number of severely handicapped children who need high-cost placements, it will need higher funding per child than the average school district.

Other major factors influencing the cost per child are the average teacher's salary,[3] the average fraction of an FTE teacher per child, and the average fractions of FTE related services professionals per child.

Finally, the estimated cost figures per child reflect the cost of services actually provided in 1977-1978. They do not necessarily indicate the costs of all needed services or the most effective services, which may differ from the cost of those actually provided.

---

school age speech handicapped children can be more appropriately served at school than at home.

[3] Salaries for other professional personnel are generally related to the teacher's salary scale in a systematic way.

XXI. COST WEIGHTING FACTORS BY AGE LEVEL, HANDICAPPING CONDITION, AND TYPE OF EDUCATIONAL PLACEMENT

Since inflation is a current fact of life, any data on total cost per pupil collected in the past will cause low estimates of current costs unless adjusted upward. One common method of adjustment is to assume that the rate of cost inflation is the same for special education as it is for regular education. Although this is not absolutely true, because programs change somewhat with time, it is a reasonable, if conservative, assumption. New data collection every year would provide better estimates, but would be costly and time-consuming; once every five years would probably suffice.

This section presents cost-weighting factors that can be used to compare cost-estimates of special education and related services per handicapped child with those of regular education per nonhandicapped child. The cost-weighting factors are shown in Tables 6, 7, and 8 by combinations of age level, handicapping condition, and type of educational placement. These factors are arrived at by dividing the total cost of special education and related services (by age level, handicapping condition, and placement) by the $1650 cost of regular education in 1977-1978.

Averaged over all handicapped children receiving special education and related services, the cost-weighting factor was 2.17. In other words, it cost an estimated 2.17 times as much to educate the average handicapped child as it did to educate the average nonhandicapped child in 1977-1978.

Table 6

RATIO OF TOTAL COST OF SPECIAL EDUCATION TO TOTAL COST OF REGULAR EDUCATION PER CHILD, BY AGE LEVEL AND TYPE OF HANDICAPPING CONDITION

Handicapping Condition[a]	Age Level and Ratio			
	Preschool	Elementary	Secondary	All Ages Combined
LD	2.06	2.72	2.78	2.74
EMR	2.10	2.40	2.23	2.30
TMR	2.86	3.08	3.64	3.34
SMR	3.24	3.64	3.60	3.59
Emotional	1.98	3.56	4.15	3.81
Deaf	4.65	5.17	3.15	4.43
Partial hear	3.55	2.95	3.15	3.09
Blind	4.00	7.11	5.40	5.86
Partial sight	1.97	2.46	3.18	2.74
Orthopedic	3.09	2.03	2.15	2.15
Other health	1.41	1.30	1.67	1.52
Speech	1.51	1.34	1.56	1.37
Multiple	5.69	4.34	4.71	4.63
All	2.14	1.98	2.48	2.17

[a]Handicapping conditions are defined in Sec. III.

Table 7

RATIO OF TOTAL COST OF SPECIAL EDUCATION TO TOTAL COST OF REGULAR EDUCATION PER CHILD, BY AGE LEVEL AND TYPE OF EDUCATIONAL PLACEMENT

Type of Educational Placement[a]	Age Level and Ratio			
	Preschool	Elementary	Secondary	All Ages Combined
Regular class plus:				
Indirect services	N.A.	1.43	1.64	1.55
Related services	1.13	1.35	1.58	1.37
Itinerant special teacher	0.71	3.39	2.57	3.16
Part-time special class	1.40	2.72	2.98	2.85
Special class plus part-time regular class	1.40	3.05	2.29	2.63
Full-time special class	3.24	3.04	2.25	2.87
Special day school	3.54	2.69	4.04	3.24
Homebound	0.99	1.28	1.61	1.35
Short-term hospital	1.16	1.09	1.40	1.20
Full-time work	N.A.	N.A.	0.55	0.55
All placements	2.14	1.98	2.48	2.17

NOTE: N.A. = data not available for this combination of age level and placement.

[a]Educational placements are defined in Sec. III.

Table 8

RATIO OF TOTAL COST OF SPECIAL EDUCATION TO TOTAL COST OF REGULAR EDUCATION PER CHILD, BY HANDICAPPING CONDITION AND TYPE OF EDUCATIONAL PLACEMENT

Type of Educational Placement[a]	Handicapping Condition[a]													
	LD	EMR	TMR	SMR	Emo-tional	Deaf	Partial Hearing	Blind	Partial Sight	Ortho-pedic	Other Health	Speech	Multiple	All
Regular class plus:														
Indirect services	1.55	1.89	N.A.	N.A.	1.91	N.A.	1.32	N.A.	1.78	1.68	N.A.	1.50	N.A.	1.55
Related services	2.02	1.51	N.A.	N.A.	3.94	5.64	1.50	N.A.	1.66	2.96	1.46	1.36	1.21	1.37
Itinerant special teacher	2.70	2.35	N.A.	N.A.	4.82	5.62	2.85	6.78	2.48	3.02	1.22	1.43	N.A.	3.16
Part-time special class	2.86	2.35	3.20	N.A.	4.18	3.26	4.23	5.98	3.86	4.35	3.01	2.44	6.17	2.85
Special class plus part-time regular class	2.43	2.46	3.43	4.00	3.28	3.61	3.58	5.32	3.46	3.05	2.99	2.12	5.32	2.63
Full-time special class	2.69	1.98	3.55	4.66	3.43	4.66	4.02	3.62	3.16	3.33	2.83	3.30	3.14	2.87
Special day school	4.40	1.85	3.24	3.63	3.76	4.79	4.18	5.53	4.80	3.47	2.23	1.78	5.48	3.24
Homebound	1.37	1.59	1.45	1.40	1.92	N.A.	1.31	N.A.	1.26	1.30	1.58	0.91	2.05	1.35
Short-term hospital	N.A.	1.72	N.A.	N.A.	1.59	N.A.	1.98	N.A.	N.A.	1.16	1.18	N.A.	1.19	1.20
Full-time work	0.50	0.65	0.49	N.A.	1.76	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.55
All placements	2.74	2.30	3.34	3.59	3.81	4.43	3.09	5.86	2.74	2.15	1.52	1.37	4.63	2.17

NOTE: N.A. = data not available for this combination of handicap and type of educational placement.

[a]Educational placements and handicapping conditions are defined in Sec. III.

The cost-weighting factor varied by age level, from 1.98 at the elementary level to 2.48 at the secondary. It varied by type of handicap from 1.37 for speech impaired children up to 5.86 for functionally blind children. It varied by type of educational placement from 0.55 for students working full time under the auspices of the special education program rather than attending classes, up to 3.24 for students in special day schools for only handicapped pupils. The highest-cost category, considering type of handicap and educational placement combined, was the functionally blind child in regular education class receiving itinerant special teacher services at a cost-weighting factor of 6.78 ($11,189 per child during the 1977-1978 school year).

XXII. TOTAL COST OF SPECIAL EDUCATION BY SIZE OF LEA ENROLLMENT

The cost per child of both regular and special education varies greatly from one education agency to another for many reasons. A better understanding of the causal factors should enable federal and state policymakers to "fine tune" their funding formulas and other policies in order to control costs while allocating scarce funds according to districts' needs.

Because research funds were limited for analyzing our data base, we could only calculate how the cost of special education varies by size of enrollment of the local education agency (LEA). Future analyses using the same data base could provide information on many other factors that influence costs. To facilitate our calculations, we grouped the LEAs in our sample into three categories containing distinct types of LEAs. The magnitudes of the estimated average costs could be used in adjusting state special education finance formulas to reflect higher and lower costs for various sizes of districts.

Small LEAs enrolled fewer than 2500 total students each. All were rural districts. With the exception of one district that was about 20 miles from a large city, all were located at least 50 miles away from a major urban center of 100,000 or greater population. Large LEAs enrolled more than 15,000 students. All were major urban school districts with the exception of one large suburban district. This group included one of the largest school districts in each of the 14 states in our sample and included 5 of the 23 largest U.S. cities. The remaining category of enrollment size, 2500 to 15,000 pupils, consisted of LEAs that were neither rural nor large major urban districts.

The small districts had an estimated total cost per pupil of $3238; the large districts had a lower cost per pupil of $2938. The highest estimated total cost of special education and related services was $4178 per pupil in the intermediate size districts.

Costs were higher for secondary than for elementary age pupils in all three categories. Costs per preschool pupil were less than costs per elementary pupil in small and intermediate size districts, but considerably higher than costs per elementary pupil for the large districts.

The patterns of variation in cost by type of handicap for the three size categories generally resembled the pattern for all sizes of districts combined. Functionally blind children had the highest cost per pupil regardless of district size. Speech impaired children had the lowest cost per pupil of any type of handicapped child in each of the three size categories. The highest-cost type of pupil placement was associated with special day schools for only handicapped children, regardless of LEA size.

Although the nationwide cost of special education and related services per pupil was 2.17 times greater than the cost of regular education per nonhandicapped pupil, this ratio varied by size of LEA enrollment from 1.78 in large LEAs to 1.96 in small LEAs, to 2.53 in intermediate size districts.

* * * * * *

The much more detailed findings that form the basis for this summary report are presented in a separate Rand publication, N-1792-ED, The Cost of Special Education (see Preface).